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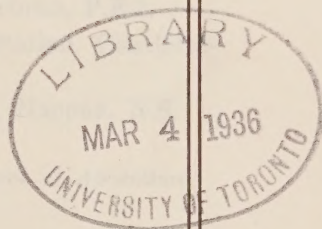
Canada Agric. Dep.

# FEEDS AND FEEDING FOR FARM LIVE STOCK

IN THE  
MARITIME PROVINCES

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Report of the Committee on Feed Rations  
for the Maritime Provinces



DOMINION OF CANADA  
DEPARTMENT OF AGRICULTURE  
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## FEEDS AND FEEDING

### The Feed Problem

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## FEEDS AND FEEDING

### The Feed Problem

When prices of farm products are low it is extremely important for the farmer to lower the cost of production as much as possible. Therefore in growing and in buying feeds for live stock it is necessary to pay close attention to animal requirements, to feed values and to prices.

There is a strong tendency among some farmers to use the same feeds year after year. They can generally obtain bran, shorts, middlings and corn from the local dealer without any trouble and so they continue to use these feeds. Of course, it frequently happens that these feeds are as low in price as any others considering the total nutrients which they contain. In that case it may be wise to use them for at least part of the ration, but because they were a "good buy" at one time is no reason why they should be used when more nutrients can be bought in other feeds for less money.

A committee of Maritime men have worked out a series of grain mixtures that are suitable for feeding various classes of live stock. The underlying idea of the committee was to call attention to the advisability of growing more grains on Maritime farms and to using more of the coarse grains grown in Western Canada. The committee was convinced that it would be profitable for Maritime farmers to pay more attention to growing oats and barley, particularly for feeding cattle and swine. Oats are grown, at the present time, very largely for horses, but might well be fed in larger quantities to cattle and sheep. Barley has not been grown in large quantities in recent years. It is an excellent feed in the dairy rations and for beef cattle and swine. It is well suited to Maritime conditions, and when sown early on good land will yield from 35 to 45 bushels per acre and often more.

From many of the feeding tests carried out at experimental farms and elsewhere, it has been found that barley is an excellent substitute for corn. It is grown extensively in our western provinces and can often be bought for a lower price than corn. Oats, barley and wheat are all good feeds for most of our live stock. They are all produced in Canada in large quantities. Farmers in the Maritime Provinces should keep this in mind and buy in our own country whenever possible. We expect Canadians to buy from us and it is only reasonable that we should buy at home whenever we can do so to advantage. Many times when corn has been imported, barley could have been bought at a lower price. Buying the barley would therefore have been more economical and at the same time would have furnished a larger market for our western farmers.

The recommendations of the Maritime Feed Committee are contained in the following pages:—

The committee did not consider rations for sheep in these recommendations. However, good oats, wheat and barley will be found excellent feeds for sheep. While barley has not given quite as good results as corn in the fattening of lambs, wheat, on the other hand, has proved practically equal to corn. Owing to the gummy texture of wheat, it cannot be as safely used as other grains, but when crushed and mixed with them it makes an excellent fattening ration and may occasionally replace a portion of the corn and barley. Two hundred pounds of oats, one hundred pounds of bran and twenty pounds of oil meal make an excellent mixture for the breeding ewes. If they are thin at breeding time, an addition of 20 to 30 pounds of ground corn will be found valuable.



Extensive trials have shown that beef steers will make almost as good gains on barley as on corn.

In buying grains or meals the buyer should have some idea of the quality of the materials. Be sure to ask the grade or guaranteed quality of the commodity. In the case of barley, wheat or oats it is advisable to buy on sample. Low grades of these grains have been ground and quoted at figures seemingly lower, but, from the standpoint of feeding value, actually higher than the better grades. Therefore, obtain, if possible, a guarantee that the ground grain is the product of a good grade of whole grain. Samples that are off-grade or below the official grades may be worth buying in some cases for making into meal. For feeding whole, the better grades should be used. In wheat, for example, Nos. 5 and 6 are commonly fed to poultry. Many of the best poultrymen will tell you it pays to feed the higher grades, unless the difference in price is very great, and they are correct. Feed wheat, which is the lowest official grade, should only be fed as meal. "No. 1 feed" screenings can often be bought at a price that makes it profitable to use for hogs and in a dairy ration.

In barley, nothing below Nos. 3 and 4 Canadian Western (3 and 4 C.W.) should be fed whole. Nos. 5 and 6 C.W. should be fed as meal.

In oats, 3 C.W. and "No. 1 feed" can be fed whole to horses. Oats may be bought on sample and a good quality can often be obtained at a fair price. The lower grades may be bought for grinding, either by grade or sample, and may be valuable if the price is right.

Whenever wheat or barley is recommended, except for poultry and sheep, they should be ground or crushed before feeding. Oats may be fed whole to horses, calves and sheep, but crushed for cattle and swine.

It has been the aim of the committee to use as far as possible feeds that can be grown in the Maritime Provinces or can be bought from Western Canada.

The committee believes that more grain and roots should be grown on most farms in the Maritimes. The farmer's living comes largely from the soil. The more he can grow per acre on his own fields, the greater will be his labour returns.

The committee was composed of the following men: Dr. J. M. Trueman, Truro, N.S.; W. H. McEwen, Moncton, N.B.; C. F. Bailey, Fredericton, N.B.; W. W. Baird, Nappan, N.S.; F. Leslie Wood, Fredericton, N.B.; Dr. J. A. Clark and W. R. Shaw, Charlottetown, P.E.I.

The following rations and feed mixtures are recommended by this committee after a careful study of feeding trials, as well as the available supply of feeds. A number of different mixtures are given in order to meet different conditions:—

### BEEF STEERS

#### SUGGESTED GRAIN RATIONS FOR FINISHING BEEF STEERS AND HEIFERS

##### MIXTURE No. 1. (FOR LONG-KEEP STEERS)

Feed	First 60 days	60 to 90 days	90 days to finish
	lb.	lb.	lb.
Ground oats.....	200	200	200
Ground barley.....	200	400	600
Bran.....	200	100	100
Fishmeal or.....	30	36	36
oilmeal.....	70	75	75

## MIXTURE No. 2. (FOR SHORT-KEEP STEERS)

Feed	First 6 weeks	Balance of period
	lb.	lb.
Ground oats.....	200	200
Ground barley.....	400	600
Bran.....	100	50
Fishmeal or.....	36	36
oilmeal.....	75	75

NOTE:—Corn may be substituted for barley when the price will permit.

For long-keep steers it is recommended they be started on 2 to 3 pounds per day, gradually increasing meal rations to 8 to 10 pounds per day at the end of the first 90 days, or three months.

Roots may be fed at the rate of 30 to 40 pounds for the first three months; then gradually decrease until the last two weeks of the finishing period the steers are on dry feed only.

For short-keep steers, start at 3 to 4 pounds of grain daily, increasing to at least 10 pounds by the end of 4 weeks. Roots may be fed same as for long-keep steers. Feed grain with the roots twice daily.

Supply a good quality of hay in moderate quantity, i.e., what they will eat up promptly. Water should be before the steers at all times. If not, water twice daily and if possible, take the chill off the water.

It is also advisable to keep rock salt before the steers at all times, or add 1 per cent of salt to meal mixture.

NOTE: Too much stress cannot be put on the fact that the fish meal must be of good quality and low in oil content. The quantity recommended throughout this pamphlet is based on not more than 3 per cent oil in fish meal.

## DAIRY CATTLE

SUGGESTED MIXTURES FOR COWS IN MILK WHERE THEIR FEED OTHER THAN MEAL CONSISTS OF: MIXED HAY WITH LITTLE OR NO CLOVER, OR TIMOTHY OR MEADOW HAY AND ROOTS, OR TIMOTHY OR MEADOW HAY WITH SILAGE, OR POOR PASTURE.

## MIXTURE No. 1

	Digest- ible protein	Total protein	
	lb.	lb.	p.c.
100 pounds oats } or 200 pounds mixed grain (1)....	9.7	12.4	Total protein.....20.2
100 " barley }	9.0	11.5	Digestible protein.....17.0
100 " bran.....	12.5	16.0	T.D.N. (2).....72.8
150 " oilmeal.....	45.3	50.8	N.R. (3).....1.3.3
450	76.5	90.7	

NOTE: (1) Mixed grain=oats and barley or oats, barley and wheat grown together.

(2) T.D.N.=Total digestible nutrients.

(3) N.R.=Nutritive ratio.

Mixture No. 1 is low in protein. It is recommended to feeders who find it impossible to get high protein feeds. The addition of 40 pounds of high-grade fish meal, or 100 pounds of choice cotton seed meal will bring it up to the



standard. This does not mean that 40 pounds of fish meal is equal in feeding value to 100 pounds of cotton seed meal, but the higher percentage of protein in fish meal will bring the percentage of protein in the mixture up to the standard required.

MIXTURE No. 2

	Digestible protein	Total protein	
	lb.	lb.	p.c.
100 pounds barley } or 200 pounds mixed grain.....	9.0	11.5	Total protein.....23.4
100 " oats }	9.7	12.4	Digestible protein.....20.1
100 " gluten.....	21.6	25.4	T.D.N.....77.2
200 " oilmeal.....	60.4	67.8	N.R.....12.72
500	100.7	117.1	

MIXTURE No. 3

	Digestible protein	Total protein	
	lb.	lb.	p.c.
100 pounds barley } or 200 pounds mixed grain.....	9.0	11.5	Total protein.....23.6
100 " oats }	9.7	12.4	Digestible protein.....19.7
100 " bran.....	12.5	16.0	T.D.N.....73.3
100 " cotton seed meal (choice).....	37.0	44.1	N.R.....12.72
100 " oilmeal.....	30.2	33.9	
500	98.4	117.9	

MIXTURE No. 4

	Digestible protein	Total protein	
	lb.	lb.	p.c.
100 pounds barley (or oats).....	9.0	11.5	Total protein.....24.0
100 " bran.....	12.5	16.0	Digestible protein.....20.4
50 " oilmeal.....	15.1	16.9	T.D.N.....76.7
50 " gluten.....	10.8	12.7	N.R.....12.76
35 " fish meal.....	21.0	23.4	
335	68.4	80.5	

NOTE: In general the same quantities of wheat or corn may be used in place of barley. It is not advisable to use all wheat, where barley can be obtained for a price equal to or less than the wheat. When oats are used, less bran is necessary, although it should be remembered that bran is considerably higher in ash and is an excellent regulator for heavy rations.

Fish meal is high in protein and ash, and, where a good quality can be obtained, two-fifths the quantity recommended for oilmeal or cotton seed meal may be used to make up the mixture.

Where grain for cows cannot be grown on the farm and where corn can be bought at a moderate price, either one of the following mixtures would meet the requirements:—



## MIXTURE No. 5

	Digest- ible protein	Total protein	
	lb.	lb.	p.c.
100 pounds corn or barley.....	7.5	10.1	Total protein.....23.8
100 " bran.....	12.5	16.0	Digestible protein.....20.2
65 " oil meal.....	19.6	22.0	T.D.N.....75.1
35 " fish meal.....	21.0	23.4	N.R.....1:2.72
300	60.6	71.5	

## MIXTURE No. 6

	Digest- ible protein	Total protein	
	lb.	lb.	p.c.
100 pounds corn or barley.....	7.5	10.1	Total protein.....23.4
100 " bran.....	12.5	16.0	Digestible protein.....19.6
100 " oil meal.....	30.2	33.9	T.D.N.....75.3
50 " cotton seed meal.....	18.5	22.0	N.R.....1:2.84
350	68.7	82.0	

In feeding the above mixtures with timothy hay and swedes the following ration would be suitable for an average sized cow (about 1,100 pounds live weight) giving 30 pounds of 4 per cent milk daily.

Sample ration for one day:—

	Digest- ible protein	Total protein	
	lb.	lb.	
18 pounds timothy hay.....	0.54	8.73	N.R. 1:6.2.....
30 " swedes.....	0.30	2.82	
8 " mixtures 2 to 6.....	1.60	6.00	
56	2.44	17.55	

Add 1 pound of the grain mixture for each 3 additional pounds of milk given.

SUGGESTED MIXTURES FOR COWS IN MILK WHERE THEIR FEED OTHER THAN MEAL CONSISTS OF: CLOVER HAY PLUS SILAGE OR ROOTS, OR MIXED HAY (MOSTLY CLOVER) AND ROOTS, OR GOOD PASTURE.

## MIXTURE No. 7

	Digest- ible protein	Total protein	
	lb.	lb.	p.c.
100 pounds barley.....	9.0	11.5	Total protein.....19.3
100 " oats.....	9.7	12.4	Digestible protein.....16.3
100 " oilmeal.....	30.2	33.9	T.D.N.....75.9
300	48.9	57.8	N.R.....1:3.66

## MIXTURE No. 8

		Digest- ible protein	Total protein	
		lb.	lb.	p.c.
100 pounds	bran.....	12.5	16.0	Total protein.....20.7
200 "	oats.....	19.4	24.8	Digestible protein.....17.6
200 "	barley.....	18.0	23.0	T.D.N.....74.3
300 "	oilmeal.....	90.6	101.7	N.R.....1.3-22
800		140.5	165.5	

## MIXTURE No. 9

		Digest- ible protein	Total protein	
		lb.	lb.	p.c.
100 pounds	bran.....	12.5	16.0	Total protein.....20.7
200 "	wheat.....	18.4	24.8	Digestible protein.....17.4
200 "	barley (or oats).....	18.0	23.0	T.D.N.....76.7
300 "	oilmeal.....	90.6	101.7	N.R.....1.3-4
800		139.5	165.5	

## MIXTURE No. 10

		Digest- ible protein	Total protein	
		lb.	lb.	p.c.
100 pounds	barley.....	9.0	11.5	Total protein.....21.2
200 "	oats.....	19.4	24.8	Digestible protein.....17.4
100 "	gluten.....	21.6	25.4	T.D.N.....75.8
100 "	cotton seed meal.....	37.0	44.1	N.R.....1.3-36
500		87.0	105.8	

NOTE: Although oats are suggested as an alternative to barley, it must be remembered that barley contains 9 pounds per hundred more total digestible nutrients than oats. The substitution of oats for barley is suggested for those who have oats at hand, or where they can be obtained for a lower price than barley.

If home-grown buckwheat is available, it may be ground and substituted for part of the oats or barley, but it should make up not more than 20 to 25 per cent of the total mixture, because it is very high in fibre.

When there is a deficiency of home-grown grain the following mixtures may be used:—

## MIXTURE No. 11

		Digest- ible protein	Total protein	
		lb.	lb.	p.c.
200 pounds	corn or barley.....	15.0	20.2	Total protein.....21.0
100 "	bran.....	12.5	16.0	Digestible protein.....17.6
100 "	oilmeal.....	30.2	33.9	T.D.N.....77.4
30 "	fish meal.....	18.0	20.1	N.R.....1.3-4
430		75.7	90.2	



## MIXTURE No. 12

	Digest- ible protein	Total protein	
	lb.	lb.	p.c.
100 pounds corn or barley.....	7.5	10.1	Total protein.....19.3
100 " shorts.....	13.4	17.4	Digestible protein.....15.9
100 " bran.....	12.5	16.0	T.D.N.....73.5
100 " oilmeal.....	30.2	33.9	N.R.....13.62
400	63.6	77.4	

NOTE: Analyses in these two tables are based on corn, but barley is recommended wherever available.

SAMPLE RATIONS FOR AVERAGE SIZED COWS FED ON GOOD ROUGHAGE  
AND GIVING 30 POUNDS OF 4 PER CENT MILK DAILY.

Feed for 24 hours:—

- (a) 20 pounds mixed hay.  
(more clover than grasses)  
11 pounds mixtures Nos. 7 to 12.
- (b) 20 pounds mixed clover hay as above.  
25 pounds turnips.  
8 pounds mixtures Nos. 7 to 12.
- (c) 10 pounds mixed clover hay as above.  
30 pounds O.P.V. silage.  
8 pounds mixtures Nos. 7 to 12.

Add 1 pound of the grain mixture for each 3 pounds additional milk given per day.

In feeding hay the cow should get all she will eat up clean in two feeds. Feed grain, roots and silage first and then give what hay will be eaten in an hour or two.

The amount of grain that should be fed, although stated definitely in above rations, should be varied somewhat to meet the special needs of individuals.

## SWINE

### SPRING LITTERS—PIGS JUST WEANED AND UP TO 70 POUNDS.

All grains fed to pigs should be ground or crushed.  
 Middlings or finely ground wheat..... 50 pounds }  
 Oats, sifted or groats ..... 50 pounds } N.R. 1:3.4  
 Buttermilk or skim-milk 3 pounds to 1 pound meal.  
 If no milk use 8 per cent fish meal.  
 Oats should be finely ground and sifted or "hulless" oats  
 ground may be used.  
 Oats may be sifted by using the ordinary fanning mill with  
 fine screens. Run the mill backwards.  
 When feeding, feed what will be cleaned up in fifteen minutes.

### GROWING PIGS 70 TO 110 POUNDS.

Shorts or finely ground wheat..... 25 pounds }  
 Oats ..... 50 pounds } N.R. 1:4.1  
 Barley ..... 25 pounds }  
 Buttermilk or skim-milk 2 to 2.5 pounds to 1 pound meal.  
 If no milk, use 8 per cent of fish meal.  
 If on alfalfa, clover or rape, meal may be reduced about  $\frac{1}{3}$ .

## GROWING PIGS 110 TO 160 POUNDS.

(a) Oats .....	50 pounds	} N.R. 1:5
Barley .....	50 pounds	
Fish meal or tankage.....	7 pounds	
Milk may be substituted for tankage.		
1½ pounds milk to 1 pound of grain plus water.		
(b) Oats .....	50 pounds	} N.R. 1:4.4
Barley .....	25 pounds	
Shorts .....	25 pounds	
Fish meal or tankage.....	7 pounds	
Milk may be substituted as in "a" ration.		
Where whey is available, use double the quantity recommended for buttermilk or skim-milk.		
(c) Oats .....	30 pounds	} N.R. 1:5
Barley .....	30 pounds	
Potatoes (cooked).....	100 pounds	
Fish meal or tankage.....	8 pounds	
Milk may be substituted as in "a" ration.		
Where whey is available, use double the quantity recommended for buttermilk or skim-milk.		

## FINISHING PIGS.

(a)	Oats .....	34 pounds	} N.R. 1:6.2
	Barley or barley and corn.....	66 pounds	
	Fish meal or tankage.....	3 pounds	
(b)	Oats .....	33 pounds	} N.R. 1:6.4
	Barley .....	33 pounds	
	Wheat .....	33 pounds	
	Fish meal or tankage, 3 per cent if in dry lot.		
(c)	Oats .....	50 pounds	} N.R. 1:6.0
	Barley .....	50 pounds	
	Potatoes .....	180 pounds	
	Fish meal or tankage.....	8 pounds	
(d)	Oats .....	40 pounds	} N.R. 1:5.5
	Potatoes .....	60 pounds	
	Fish meal or tankage.....	3 pounds	

NOTE: Corn and barley are interchangeable.

*Winter Feeding*—Use above mixtures with:

Two pounds roots to 100 pounds live weight per day. Alfalfa or clover hay of excellent quality may be fed in racks to pigs from 100 pounds up. Weaned pigs should have 3 pounds oilmeal to 100 pounds of feed especially if no roots.

NOTE: Where fish meal or tankage is not available, substitute double the quantity of oilmeal and bran mixed in equal parts. Always feed clover or alfalfa hay, or roots. Always provide mangels for winter feeding of growing pigs and brood sows if possible. No other green feed available in winter is as satisfactory; turnips are second choice.

## SOWS.

*When Suckling Pigs* (nursing sow).

Meal for one day—

for one day—		
Oats .....	3½ pounds	} N.R. 1:4
Barley .....	3½ pounds	
Middlings .....	3 pounds	
Skim milk 22 pounds, or 8 per cent fish meal or tankage. ....		
Roots .....	7 pounds	

Amount per day will depend upon the sow and size of litter.

Young pigs may be turned out at night for exercise to avoid burning by sun.



## DRY SOWS.

### Summer.

Pasture—clovers and grasses or annual crops.

If the sow is rather thin, feed 1 pound grain per 100 pounds live weight per day during last month before farrowing.

### Winter.

Alfalfa hay, red clover hay of good quality, roots, mangels. (See note above *re* mangels).

Oats

Barley

Middlings

Equal parts. May omit barley for sows in good condition.

Fish meal or tankage—3 per cent during last six weeks before farrowing.

Where no roots, use 3 per cent oilmeal.

Where milk available, no tankage required.

If feeding roots but no milk or oilmeal, use tankage or fish meal at the rate of 6 per cent of the meal mixture.

NOTE: White fish below 3 per cent oil and over 60 per cent protein should be used.

## MATURE BOAR:

One day's feed.

Equal parts barley and oats 5 to 7 pounds. N.R. 1:7.

Skim-milk, 1.5 pounds every pound meal.

Whey, 3 pounds every pound meal.

Roots, 2 pounds per 100 pounds live weight.

Water at will—pasture in summer.

## MINERAL MIXTURES FOR SWINE:

- |   |  |
|---|--|
| <p>(a) 4 bushels charcoal<br/>10 pounds salt<br/>10 pounds bonemeal<br/>2 pounds sulphur<br/>1 pound iron sulphate</p>  | <p>(b) Soft coal.....20 pounds<br/>Salt ..... 1 pound<br/>Bonemeal .....2 pounds<br/>Sulphur .....1 pound<br/>Ground limestone.....10 pounds</p> |
| <p>(c) 2 bushels charcoal<br/>2 bushels hardwood ashes<br/>10 pounds salt<br/>5 pounds finely ground limestone or air slaked lime<br/>5 pounds bonemeal<br/>2 pounds sulphur<br/>1 pound iron sulphate</p>            |  |
| <p>(d) Bonemeal or bone char.....50 pounds<br/>Slaked lime or hydrated lime or pulverized limestone.....30 pounds<br/>Salt .....10 pounds<br/>Sulphate of iron ..... 5 pounds<br/>Potassium iodide ..... 2 ounces</p> |  |
| <p>(e) A commercial mineral mixture may be secured from the manufacturers that is already mixed and contains the right amount of iodine.</p>  |  |

Supply (a), (b) or (c) in self feeders, or feed (d) or (e) at the rate of two pounds to every 100 pounds of meal.

Note: To prevent hairless pigs: dissolve 1 ounce of potassium iodide in 1 gallon of water and feed at rate of 1 tablespoonful per sow per day during period of pregnancy.

## POULTRY

### LAYING MIXTURES:

#### No. 1 Mash

100 pounds bran	}	or 200 pounds finely ground wheat
100 pounds middlings		

100 pounds ground corn  
100 pounds ground oats  
50 pounds fish meal or meat scrap  
3 pounds salt.

#### Scratch Grain

200 pounds cracked corn  
200 pounds wheat  
100 pounds oats

*No. 2 Mash*

100 pounds ground wheat  
 100 pounds ground barley or oats  
 100 pounds ground corn  
 50 pounds fish meal or meat scrap  
 2 pounds salt

*No. 3 Mash*

100 pounds bran  
 100 pounds ground wheat or barley  
 100 pounds ground oats  
 50 pounds fish meal or meat scrap  
 2 pounds salt

*Scratch Grain*

100 pounds wheat  
 100 pounds barley  
 100 pounds oats

*Scratch Grain*

100 pounds wheat  
 100 pounds cracked corn  
 100 pounds oats

The most satisfactory method of feeding mash is to keep it in hoppers constantly before the flock. However, it may be fed moistened and if table scraps are available these may be conveniently utilized by mixing them with the mash.

Where little or no milk is available the amount of animal feed may be increased.

Water, grit, oyster shell and charcoal should be constantly supplied and green feed given regularly.

The amount of scratch grain fed should be varied according to the condition of the flock. When laying is heavy and the birds are losing weight increase the scratch grain. Generally speaking, about one quart of grain to each 12 hens, or 12 to 16 pounds per day per 100 birds is fed. Three per cent bone meal may be added to the laying mash and during the time of the year that the birds are confined to the houses 2 per cent cod liver oil should also be added.

**FATTENING MIXTURES:**

1. Equal parts middlings, ground oats and ground barley.
2. Equal parts ground whole wheat, barley and oats.
3. Equal parts ground oats, middlings and ground corn.
4. Equal parts middlings, ground oats and chopped raw potatoes.
5. Equal parts middlings, ground oats and mashed potatoes.
6. Equal parts ground barley, ground oats and potatoes.

The above mixtures to be mixed with buttermilk or sour skim-milk and fed sloppy.

**ALL MASH CHICK STARTER:**

From the start mashers may be kept in hoppers constantly before the chicks, also hoppers of grit, oyster shell and charcoal, as well as fountains of water from which at the start the chill has been removed. Fresh milk is a valuable addition to the ration and where available may be supplied in which case milk powder may be omitted from the animal feed mixture.

When the chicks are from two to three weeks of age small quantities of chick scratch grain is supplied which is gradually increased and changed for the regular range scratch grain until by the time the chicks are large enough—10 to 12 weeks of age—half their total ration will be scratch grain. When hoppers of grain are supplied and free choice is allowed the proportion of scratch to mash consumed will increase greatly.

*No. 1 Mash*

200 pounds ground corn  
 200 pounds oat flour (ground groats)  
 200 pounds wheat middlings  
 100 pounds wheat shorts  
 100 pounds alfalfa leaf meal  
 100 pounds animal feed mixture (beef scrap, fishmeal and milk powder)  
 2 per cent bone meal  
 1 per cent cod liver oil  
 ½ per cent iodized salt



When the chicks are old enough to get onto range the alfalfa leaf meal and shorts may be substituted by equal quantities of bran and the cod liver oil omitted.

*No. 2 Mash*

- 200 pounds wheat bran
- 200 pounds wheat middlings
- 200 pounds rolled oats or ground groats
- 200 pounds ground corn
- 100 pounds meat scrap and fish meal or either
- 50 pounds alfalfa leaf meal
- 35 pounds bone meal
- 10 pounds cod liver oil
- 5 pounds iodized salt

*No. 3 Mash*

- 70 pounds ground yellow corn
- 20 pounds ground wheat or middlings
- 5 pounds fish meal or meat scrap or milk if available, ad lib.
- 4 pounds chick size bone meal
- 1 pound salt

Add 3 per cent finely crushed oyster shell or limestone grit and when the chicks are indoors all or most of the time, from 1 to 2 per cent cod liver oil. Give skim-milk or buttermilk for at least 8 or 10 weeks and green feed always. This or somewhat similar mixtures popular in the corn belt States may be fed until maturity if desired, but can only be recommended where corn is sufficiently low in price to warrant its use in place of Canadian grown grains.

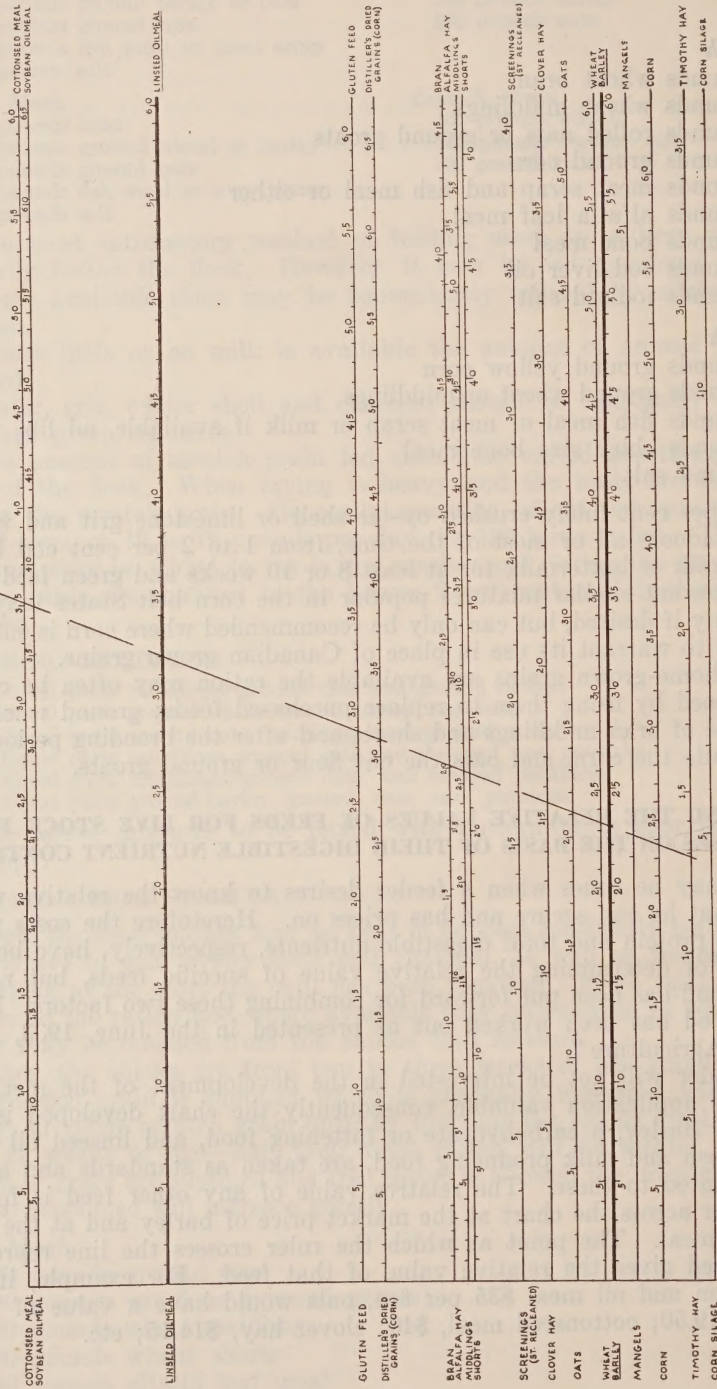
Where home-grown grains are available the ration may often be considerably cheapened by using them to replace purchased feeds; ground wheat being used in place of bran middlings and shorts and after the brooding period barley may substitute the corn, and oats the oat flour or ground groats.

**DETERMINING THE RELATIVE VALUES OF FEEDS FOR LIVE STOCK FEEDING PURPOSES ON THE BASIS OF THEIR DIGESTIBLE NUTRIENT CONTENT**

There may be times when a feeder desires to know the relative value of two feeds that he can secure and has prices on. Heretofore the costs per unit of digestible protein and total digestible nutrients, respectively, have been used as a means of determining the relative value of specific feeds, but no satisfactory method has been put forward for combining these two factors. Latterly such a method has been worked out as presented in the June, 1933, issue of "Scientific Agriculture".

The reader will not be interested in the development of the method but may find its application valuable, consequently the chart developed is reproduced here. Barley, a carbohydrate or fattening food, and linseed oil meal, a protein or flesh and milk producing food, are taken as standards and all other feeds are related to these. The relative value of any other feed is found by laying a ruler across the chart at the market price of barley and at the market price of oil meal. The point at which the ruler crosses the line representing any other feed gives the relative value of that feed. For example, if barley is \$20 per ton and oil meal \$35 per ton, oats would have a value of \$19 per ton; bran, \$19.50; cottonseed meal, \$40; clover hay, \$14.15; etc.

# CHART FOR THE DETERMINATION OF THE RELATIVE VALUE OF FEEDS



TAKE THE PRICE PER TON OF BARLEY AND OILMEAL. THE POINT AT WHICH A STRAIGHT EDGE, JOINING THE VALUES TAKEN, INTERSECTS THE LINE REPRESENTING THE FEED OF WHICH THE VALUE IS DESIRED, GIVES THE VALUE OF THAT FEED IN DOLLARS PER TON IN RELATION TO THE VALUE OF BARLEY AND OILMEAL. E.G. BARLEY AT \$23.00 AND OILMEAL AT \$22.00 SHOWS OATS WITH A VALUE OF \$22.10.